REMARKS

Claims 1-8 and 25-29 are all the claims pending in the application.

Claims 1-8 and 25-29 have been rejected under 35 U.S.C. § 103(a).

Claim 1 has been amended to recite that the proportions of CH^3, CH^2 and CH bonds are 25, 60 and 15, respectively, and that the electronic states of sp^3, sp^2 and sp are 53, 45 and 15, respectively. Support for the amendment can be found, for example, on page 3, line 29, through page 4, line 3.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 4-8 and 25-28 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over EP 0 773 166 ("Nagashima") in view of the article to Danzer ("Danzer").

Claims 2-3 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Nagashima in view of Danzer and further in view of FR 2,712,310 ("Benmalek").

The Examiner asserts that Nagashima teaches all of the elements recited in present Claim 1, except those elements relating to the amorphous carbon having a polymer tendency.

The Examiner relies on Danzer to teach the use of barrier coatings of amorphous carbon with a polymer tendency for the purpose of providing improved film properties.

Applicants respectfully assert that the combination of Nagashima and Danzer fails to teach or suggest every element recited in the independent Claim 1.

In the present invention, the amorphous carbon material contains CH, CH^2 and CH^3 bonds in the proportions of 25, 60 and 15, respectively. Although Danzer contains a general teaching about the presence of such bonds, Danzer fails to teach or suggest their particular

values. Applicants assert that the coating of Danzer contains more CH bonds than CH^3 or CH^2, which is different from the present invention. Furthermore, Danzer does not specify the that the electronic states sp^3, sp^2 and sp are present in the proportions 53, 45 and 2 in its amorphous carbon material.

Applicants further assert that the amorphous carbon materials of the present invention and Danzer are different because the precursors and methods of coating taught in Danzer and in the present application are different.

Danzer teaches that the benzene and chlorobenzene discharge are used in the deposition process. *See* Danzer, Abstract. In the present invention, acetylene and plasma/microwaves are used in the deposition process. Since, "[i]t is well-known that the properties of the deposited films depend strongly on the process conditions," Applicants assert that the material of Danzer is different from the instantly-claimed amorphous carbon material. *See* Danzer, page 119, col. 2.

Therefore, in view of these reasons, the amorphous carbon material of Danzer does not suggest the specific amorphous carbon coating recited in Claim 1.

Applicants further assert that there is no motivation or suggestion to modify the cited references in order to arrive at the present invention.

Danzer does not suggest that its coatings are suitable for use in containers. The substrate disclosed in Danzer is an aluminum foil strip. Although it is known to use aluminum as a material for a container, one of ordinary skill in the art would recognize that an aluminum container would inherently possess those barrier properties desired in a container. Accordingly, there would be no need to use a barrier coating on the internal or external surface of an

aluminum container. Thus, Danzer does not suggest a barrier coating for a container. In fact, Danzer's teachings are limited to the coating of IR optical elements, solar cells, semiconductors wafers, capacitors, metal parts, and optical wave conductors for the purposes of protecting these elements against wear and scratches. *See*, Danzer, page 119, col. 1.

Furthermore, Danzer fails to contemplate using its coatings as barrier coatings. The teachings of Danzer are limited to using diamond-like carbon ("DLC") and a polymer-like amorphous carbon (obtained from benzene or chlorobenzene) to improve some specific mechanical properties of aluminum based substrates. Although Danzer mentions that some films are "soft" (*see* Danzer page 119, first column), Danzer does not disclose that its amorphous carbon with a polymer tendency coatings would be suitable as a barrier coating.

In addition, Applicants assert that the amorphous carbon of Danzer may have different mechanical and/or chemical properties based on their deposition process. This assertion is supported by the teachings of Danzer: "[i]t is well-known that the properties of the deposited films depend strongly on the process conditions; however, this field has not been sufficiently investigated to predict for which relevant conditions films grow with defined and desired properties." *See* Danzer, page 119, col. 2.

As discussed, Danzer teaches that benzene and chlorobenzene discharge are used in the deposition process. *See* Danzer, Abstract. In the present invention, acetylene and plasma/microwaves are used in the deposition process.

If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

In light of the teachings of Danzer that an amorphous carbon with polymer tendency may possess different properties based on process conditions, Applicants assert that if the amorphous carbon of Danzer were modified as taught in the present invention, the modified amorphous carbon may not be satisfactory for the coating of IR optical elements, solar cells, semiconductors wafers, capacitors, metal parts, and optical wave conductors for the purposes of protecting these elements against wear and scratches.

Applicants also assert that one of ordinary skill in the art would not consider a DLC layer and an amorphous carbon material with polymer tendency to be equivalents in the field of container composition.

The Examiner asserts that it would be obvious to one of ordinary skill in the art to use the amorphous carbon material of Danzer as a barrier coating on the plastic substrates of Nagashima.

Applicants note that a DLC layer and polymorphous carbon layer possess different mechanical characteristics.

In Danzer, it is indicated that DLC can be used for protective, antireflection coatings and for the manufacture of optical wave conductors. *See* Danzer, page 119, col. 2. Danzer further indicates that an amorphous carbon material can be used as an *immediate* layer (not an *intermediate* layer) for material composites or for healing processes. Thus, it is recognized in the art that DLC material and polymer like amorphous carbon material have very different

mechanical properties. Accordingly, one of ordinary skill in the art would not consider them to be equivalents.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

Raul Tamayo / Patrick Gallagher Reg. No 54,109

L. Raul Tamayo
Registration No. 47,125

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: January 12, 2004